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Document Transmitted: Proposed Declaration

Message: Per our telephone conversation, enclosed please find the Proposed Declaration for your review. Please call me once you have reviewed the same.

Thank you for your cooperation and assistance in this matter.

Curtis B. Hamre

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S/N 09/575348

PATENTIN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: ANDO ET AL. Examiner: S. IP  
Serial No.: 09/575348 Group Art Unit: 1742  
Filed: May 19, 2000 Docket No.: 12052.33US01  
Title: BILLET FOR COLD FORGING, METHOD OF MANUFACTURING  
BILLET FOR COLD FORGING, METHOD OF CONTINUOUSLY COLD-  
FORGING BILLET, METHOD OF COLD-FORGING

CERTIFICATE UNDER 37 CFR 1.6(d):

I hereby certify that this paper is being transmitted by facsimile to the U.S. Patent and Trademark Office on June \_\_, 2003.

By: \_\_\_\_\_

Name: Lisa Dorn

## DECLARATION OF

Mail Stop Non-Fee Amendment  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

1. I am one of the inventors of the invention described and claimed in the above-identified patent application. I have a \_\_\_\_\_ degree in \_\_\_\_\_ granted by \_\_\_\_\_. I am employed by Honda Giken Kogyo Kabushiki Kaisha. I have been engaged in research on forging technology, and am currently employed in the Engineering Department of the Intellectual Property Division of Honda.
2. I am familiar with the present patent application and the claims pending at the time of this declaration. I believe the billet claimed in each of the pending claims is inventive in this technology based on my knowledge of the prior art for at least the reasons given in this declaration.
3. With respect to a billet of steel for continuous cold forging, claims 1-4 all have in common components within the ranges given in the table below such that and, a surface of the billet comprises a fine spheroidized structure or that a carbide of the billet is spheroidized, and that the billet has a limiting upsetting ratio of 90% or more without the occurrence of cracks.

COMPONENT	CLAIMS 1-2, 30-31	JIS S48C
<i>C</i>	0.46 to 0.48 wt%	0.45 ~0.51
<i>Si</i>	0.14 or less wt%	0.15 ~0.35
<i>Mn</i>	0.55 to 0.65 wt%	0.60 ~0.90
<i>P</i>	0.015 or less wt%	0.03 or less
<i>S</i>	0.015 or less wt%	0.035 or less
<i>Cu</i>	0.15 or less wt%	0.30 or less
<i>Ni</i>	0.20 or less wt%	0.20 or less
<i>Cr</i>	0.35 or less wt%	0.20 or less

4. I and my co-inventors have discovered that to achieve the indicated limiting upsetting ratio without cracks that the components must be as indicated, and particularly, that *C* must be controlled within the tight range indicated and that *Si*, *Mn*, *P*, *S* and *Cu* must be near the bottom or below the bottom of the range of similar components with respect to the composition of steel S48C for hot forging. Our testing has identified that cracks occur when *C* is 0.49 wt% or more and the other components are in the ranges claimed. The lower limit for *C*, namely 0.46 wt%, is necessary to achieve an acceptable hardness (see clean copy of the substitute specification page 1, lines 31-35 and page 15, lines 21-26).

5. I and my co-inventors discovered and disclosed in this patent application two different methods of making billets using the claimed ranges of components in order to achieve the property that the billet has a limiting upsetting ratio of 90% or more without the occurrence of cracks. The methods are illustrated in the attached copies of Figs. 1 and 10 from the application. Fig. 1 is explained at page 16, line 31 to page 18, line 6 of the clean copy of the

substitute specification. Fig. 10 is explained at page 21, lines 11-24 of the substitute specification.

6. Until we discovered the claimed ranges of components and the methods of making billets by cold forging which achieve the property of a limiting upsetting ratio of 90% or more without the occurrence of cracks, I believe that no one else had achieved making a billet with the claimed limiting upsetting ratio. In our industry, this is significant.

7. Claims 2 and 31 have the further limitation that the billet has an aspect ratio of 300% or less. This is another property which is achievable with the method of Fig. 1. I believe this is also very significant.

8. Claims 30 and 31 have the further limitation that the surface of the billet comprises a fine spheroidized structure comprising ferrite and cementite. This is a result of using the method of Fig. 10.

9. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and alike are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATED: \_\_\_\_\_

BY: \_\_\_\_\_